



Forest Service News Release

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Wood is the New Concrete

Sustainable solution reduces carbon footprint

Madison, WI – January 10, 2023— In the first project of its kind in North America, cellulosic nanomaterials were mixed with concrete to build the Yreka bridge in Siskiyou, California. The pilot project summarized in the video “Wood Is the New Concrete” demonstrates how nanocellulose, a derivative of wood, can be added to traditional building materials to make them stronger and lead to a significantly lower carbon footprint.

“The Forest Products Laboratory is building a sustainable future by showing how wood and its components can reduce our dependence on greenhouse-gas-intensive materials like steel, plastic, oil, and cement,” said Kenneth Zwick, assistant director of Fiber and Composites Research at the Lab in Madison, Wisconsin. “Working with Oregon State University; Siskiyou County, California; and the U.S. Endowment, we have recently shown how we can use the smallest component of wood, cellulose nanocrystals, to reduce the amount of energy needed to make concrete, while still maintaining all of its desirable building properties.”

Adding nanocellulose to concrete shows it’s possible to help shift an essential building material like concrete from being a carbon problem to being a carbon solution.

A single rod-like cellulose nanocrystal is the tiniest building block of wood. Each crystal is one hundred million times smaller than the head of a pin and can only be seen through a powerful scanning electron microscope. A small amount of nanocellulose is all that is needed to strengthen the concrete significantly and reduce its carbon footprint.

“We believe that forests provide powerful climate solutions,” said Rae Tamblyn, director of #forestproud, a program of the Society of American Foresters. “As trees grow, they exchange oxygen for CO₂ and lock carbon away, deep in their trunks, roots, and branches. To fully understand the positive impact forests can have on our climate, we need to think big, but also smaller – much smaller. We partnered on the ‘Wood is the New Concrete’ video because we want to grow awareness about the climate potential of nanocellulose as a concrete additive.”

Watch the video here: <https://woodisthenewconcrete.com/>
For more information about nanocellulose technology, visit:
<https://www.fpl.fs.usda.gov/labnotes/?p=28119&source=FPLleftnaventrypoint>

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